Paper No. 22

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte HIROSHI ISHIBUCHI, HIROYUKI TAKENAKA, KAZUNORI KOHNO, TOSHIHIDE KATO and HIROYUKI SUZUKI

Appeal No. 2000-2229
Application No. 09/126,766

ON BRIEF

Before STAAB, McQUADE and NASE, Administrative Patent Judges.

McQUADE, Administrative Patent Judge.

DECISION ON APPEAL

Hiroshi Ishibuchi et al. appeal from the final rejection of claims 3 through 8, all of the claims pending in the application.[1]

THE INVENTION

The invention relates to "a rotary cutoff apparatus, which is arranged, for example, in a production line for a band-shaped sheet material such as a corrugated fiberboard sheet to cut off

[1] Claim 8 has been amended subsequent to final rejection.

the corrugated fiberboard sheet . . . into predetermined lengths" (specification, page 1). Representative claim 8 reads as follows:

8. A rotary cutoff apparatus comprising:

a knife cylinder rotatably supported by an apparatus frame and having a helical knife retractably mounted on a circumferential surface of said knife cylinder via a cushioning support mechanism;

an anvil cylinder rotatably supported by the apparatus frame and juxtaposed with said knife cylinder, said anvil cylinder having on its circumferential surface a substantially rigid coating layer engageable with a cutting edge of said helical knife when said knife cylinder and said anvil cylinder rotate in opposite directions; and

said helical knife being movable between a projected position in which said helical knife projects outwardly of said knife cylinder when said cutting edge is out of contact with said coating layer of said anvil cylinder and a retracted position in which said helical knife is retracted inwardly of said knife cylinder when said cutting edge is in contact with said coating layer.

THE PRIOR ART

The references relied on by the examiner to support the final rejection are:

Schriber et al. (Schriber)	4,131,047	Dec. 26, 1978
Von Schriltz	4,289,055	Sep. 15, 1981
Ohmori et al. (Ohmori)	4,630,514	Dec. 23, 1986
Steidinger	5,086,683	Feb. 11, 1992
Hornung	2,021,061	Nov. 11, 1971
German Patent Document[2]		

[2] An English language translation of this reference, prepared by the United States Patent and Trademark Office, is appended hereto.

Kalpakjian, S., Manufacturing Engineering and Technology, 3rd ed., pp. 641-650, 995 (Addison-Wesley 1995)

THE REJECTIONS

Claims 3 and 8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Steidinger in view of Ohmori and Schriber.

Claim 4 stands under 35 U.S.C. § 103(a) as being unpatentable over Steidinger in view of Ohmori, Schriber and Hornung.

Claims 5 through 7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Steidinger in view of Ohmori, Schriber, Von Schriltz and Kalpakjian.

Attention is directed to the appellants' brief (Paper No. 17) and to the examiner's final rejection and answer (Paper Nos. 7 and 21) for the respective positions of the appellants and the examiner with regard to the merits of these rejections.[3]

DISCUSSION

[3] In the final rejection, claim 8 also stood rejected under 35 U.S.C. § 112, first paragraph. The examiner has since withdrawn this rejection (see the advisory action dated February 9, 2000, Paper No. 12) as a result of the amendment made subsequent to final rejection (see n.1, supra).

Steidinger, the examiner's primary reference, discloses an apparatus for cutting a continuous running web 23 of paper, plastic, fabric, or the like. As described in the reference,

> 10 designates generally the frame of the apparatus which rotatably supports a blade cylinder [11] and an impression cylinder 12. These are rotated by a gear train 13. The numeral 14 designates the blade carried by the blade cylinder 11. One clamping arrangement is shown in FIG. 2. A slot 15 is cut across the axial length of a rotating blade holding or carrying cylinder 11. On one side of the slot, an undercut 16 is provided. A blade clamping bar 17 is slid into slot 15. A series of axially spaced springs 18 apply a force F upward as illustrated, i.e., radially outward, on the bar 17. . . .
>
> The cutting or perforating blade 14 is mounted between the bar 17 and one sidewall 19 of the slot 15. The blade 14 is supported on its bottom edge by the bar 17 at ledge 20. The blade 14 is supported so that the cutting edge 21 will be moved downward against the force F of springs 18 when it contacts the anvil cylinder 12. It is desirable that the amount of downward movement be minimal but sufficient to absorb the errors due to manufacturing tolerances in the height of the cutting rules, changes in center distance due to heating of the frames, run out of the cylinders, etc. [column 3, lines 3 through 28].

The appellant does not dispute the examiner's finding (see page 3 in the final rejection) that Steidinger meets all of the limitations in representative claim 8 except for those requiring the knife to be a "helical" knife and the anvil cylinder to have on its circumferential surface "a substantially rigid coating layer." Steidinger's knife (blade 14) is straight (see Figures 1 and 5) and the anvil cylinder (impression cylinder 12) associated

therewith is not disclosed as having a coating. To overcome these deficiencies, the examiner turns to Ohmori and Schriber.

Ohmori pertains to rotary drum shears comprising a pair of drums each having a knife mounted on its periphery. The drums rotate in opposite directions and the knives cooperate to cut a web of material such as corrugated cardboard. Ohmori teaches that spiral or helical knives are superior to straight knives in that they exert a reduced cutting load on the drums (see column 1, lines 7 through 60).

Schriber teaches that the anvil cylinder of a rotary cutter "may be provided with a hardened surface, or insert, or in some cases a die, to cooperate with the sharpened edge of the knife in severing the passing web as the web moves between the rotating knife cylinder and anvil or back-up cylinder" (column 1, lines 12 through 16).

In proposing to combine Steidinger, Ohmori and Schriber to reject claim 8, the examiner concludes that it would have been obvious to one of ordinary skill in the art "to provide the invention of Steidinger with a helical knife as disclosed by Ohmori for the purpose of reducing the cutting load, and a hardened anvil surface as disclosed by Schriber for the purpose of providing accurate seating between the knife cylinder and the anvil cylinder" (final rejection, page 3).

The arguments contained in the appellants' brief focus on the proposed modification of Steidinger in view of Ohmori, with the appellants highlighting the individual shortcomings of each reference vis-a-vis the subject matter recited in claim 8 and urging that there is no suggestion to combine the two in the manner advanced by the examiner. Non-obviousness cannot be established, however, by attacking references individually where, as here, the rejection is based upon the teachings of a combination of references. In re Merck & Co., Inc., 800 F.2d 1091, 1097, 231 USPQ 375, 380 (Fed. Cir. 1986). Ohmori clearly establishes that helical knives were conventional in web cutting devices of the sort claimed at the time of the appellants' invention.[4] Furthermore, Ohmori teaches that helical knives are superior to straight knives in terms of reducing the load exerted on the blade-supporting rolls during the web cutting operation. This teaching would have provided the artisan with ample motivation or suggestion to utilize a helical knife in place of Steidinger's straight knife or blade 14. Hence, the appellants' position that the proposed combination of these two references rests on impermissible hindsight is not persuasive.

Similarly, Schriber's teaching that the anvil cylinder of a rotary cutter can be provided with a hardened surface would have

[4] The appellants concede as much through their depiction of the prior art in Figures 7 and 8 of the instant application.

furnished the artisan with ample suggestion or motivation to provide same to Steidinger's anvil cylinder 12 for the self-evident purpose of increasing its resistance to wear, which would result in more accurate seating of the knife as pointed out by the examiner. The appellants do not dispute that a substantially rigid coating layer as recited in claim 8 would fall within the ambit of Schriber's suggestion in this regard.

Thus, the combined teachings of Steidinger, Ohmori and Schriber justify the examiner's conclusion that the differences between the subject matter recited in claim 8 and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art. Accordingly, we shall sustain the standing 35 U.S.C. § 103(a) rejection of claim 8 as being unpatentable over Steidinger in view of Ohmori and Schriber.

We also shall sustain the standing 35 U.S.C. § 103(a) rejection of dependent claim 3 as being unpatentable over Steidinger in view of Ohmori and Schriber, the standing 35 U.S.C. § 103(a) rejection of dependent claim 4 as being unpatentable over Steidinger in view of Ohmori, Schriber and Hornung, and the standing 35 U.S.C. § 103(a) rejection of dependent claims 5 through 7 as being unpatentable over Steidinger in view of Ohmori, Schriber, Von Schriltz and Kalpakjian. The appellants have not challenged these rejections with any reasonable

specificity, and thus dependent claims 3 through 7 stand or fall with parent claim 8 (see In re Nielson, 816 F.2d 1567, 1572, 2 USPQ2d 1525, 1528 (Fed. Cir. 1987)).

SUMMARY

The decision of the examiner to reject claims 3 through 8 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

LAWRENCE J. STAAB Administrative Patent Judge	)
JOHN P. McQUADE Administrative Patent Judge	) BOARD OF PATENT APPEALS AND INTERFERENCES
JEFFREY V. NASE Administrative Patent Judge	)

JPM/gjh

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